

10/659,423 filed 09/10/2003
Tammy Burd-Mehta
Reply to Office Action of 08/28/2006

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REMARKS/ARGUMENTS

Claims 1 and 3–10 are pending in the above-captioned application, and all of these claims stand rejected. With this paper, claims 1, 3, 4, and 6 are amended.

I. Claim rejections under 35 U.S.C. § 103(a) as being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations") and further in view of Maniatis et al. ("Molecular cloning; a laboratory manual")

Claims 1, 3–7, and 10 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations," Nucleic Acids Research, 1998, Vol. 26, No. 13: Pages 3309–3310) and further in view of Maniatis et al., "Molecular cloning; a laboratory manual," Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY (1982): pages 150–152. This rejection is respectfully traversed. To warrant rejection under 35 U.S.C. § 103(a), all the claim limitations must be taught or suggested by the prior art. See MPEP § 2142.

With regard to amended claim 1, at a minimum, the combination of Stapleton, Moreira, and Maniatis et al. does not teach both thermocycling and separating in the same sieving medium, wherein the polymer concentration of the sieving medium is less than about 0.4%. This limitation has been amended to more particularly point out and distinctly claim Applicant's invention. Support for the limitation can be found throughout the specification, for example on page 4 in paragraph 0019 and on page 10 in paragraph 0045. Thus, no new matter is added by the amendment of the claim.

Neither Stapleton, Moreira, nor Maniatis et al. teaches using a sieving medium having a polymer concentration that is less than about 0.4% polymer for both thermocycling and separating. In column 15, lines 2–8, Stapleton describes the amplification 54 and separation 56 submatrices as being of "different" compositions, with separation submatrix 56 "comprising a 5% T wedge rehydrated polyacrylamide gel...."

Moreira also teaches different thermocycling and separating matrices. Purified gDNA is thermocycled in agarose blocks having concentrations "as high as 0.3%." See page 3309, paragraph beginning at the bottom of column 1. Following thermocycling, the products are "electrophoresed on 1.2% agarose gels." See page 3310, the second full paragraph. Thus, Moreira, like Stapleton, teaches away from performing both thermocycling and electrophoresis in a sieving medium wherein the concentration of polymer is less than about 0.4%.

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Maniatis et al. is cited only for teaching that agarose gels having different polymer concentrations have different ranges of separation of linear DNA molecules and that a larger amplification product requires a polymer mixture having a lower concentration for accurate separation. No mention is made of thermocycling and separating in the same matrix.

Therefore, the combination cited by the Examiner does not teach or suggest all of the limitations of claim 1. Withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations") and further in view of Maniatis et al. ("Molecular cloning; a laboratory manual") is respectfully requested.

Claims 3-7 and 10 depend directly or indirectly from claim 1. Any claim depending from a nonobvious claim is also nonobvious. See MPEP § 2143.03 and *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, dependent claims 3-7 and 10 are nonobvious. Withdrawal of the rejections of these claims as being unpatentable over Stapleton in view of Moreira is also respectfully requested. Applicant wishes to point out that the amendments to claims 3, 4, and 6 submitted herewith have been made in the interest of consistency with amended claim 1. Support for the limitations can be found throughout the specification, for example on page 2 in paragraph 0008, on page 4 in paragraph 0019, on page 6 in paragraphs 0027 and 0028, and on page 10 in paragraphs 0045 and 0046. Thus, no new matter is added by the amendments to these claims.

II. Claim rejections under 35 U.S.C. § 103(a) as being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors ...") and further in view of Maniatis et al. ("Molecular cloning; a laboratory manual") and Woolley et al. ("Ultra-high-speed DNA fragment separations using microfabricated capillary array electrophoresis chips")

Claims 8 and 9 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Stapleton (US 5,188,963) in view of Moreira ("Efficient removal of PCR inhibitors using agarose-embedded DNA preparations") and further in view of Maniatis et al. ("Molecular cloning; a laboratory manual") and Woolley et al. ("Ultra-high-speed DNA fragment separations using microfabricated capillary array electrophoresis chips," Proc. Natl. Acad. Sci. November 1994. Vol. 91: Pages 11348-11352). This rejection is respectfully traversed.

As demonstrated above, Applicant's claim 1 is nonobvious. Claims 8 and 9 depend directly and indirectly, respectively, from claim 1. As any claim depending from a

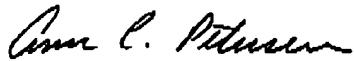
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nonobvious claim is also nonobvious, dependent claims 8 and 9 are nonobvious. Further, Maniatis et al. and Woolley et al. teach only electrophoretic separation of PCR products in a sieving matrix and do not teach mixing PCR reaction components with a sieving medium in a microfluidic channel or thermocycling the PCR reaction components in the same sieving matrix used for electrophoretic separation. Withdrawal of the rejection of claims 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Stapleton in view of Moreira and further in view of Maniatis et al. and Woolley et al. is, therefore, respectfully requested.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney.

Respectfully submitted,



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Signed: Ann C. Petersen